



Edd Clark & Associates, Inc.

Environmental Consultants

March 30, 2006

Job No.: 0232,002.95

Mr. Richard Winterhalder
226 Preston Drive
Cloverdale, CA 95425

**Report of October 2005 Groundwater Monitoring and
Ozone System O&M through October 2005
811 Irwin Lane
Santa Rosa, California**

Dear Mr. Winterhalder:

Please accept this as Edd Clark & Associates, Inc.'s (EC&A's) report on the October 2005 groundwater monitoring and ozone system operation and maintenance (O&M) activities conducted through October 2005 at 811 Irwin Lane (site) in Santa Rosa, California (Figure 1). Groundwater monitoring is being conducted at the site at the request of the County of Sonoma Department of Health Services (CSDHS) because of a release of fuel hydrocarbons (FHCs) to the subsurface from underground storage tanks (USTs) formerly located at the site. A copy of this report will be sent to the CSDHS and the North Coast Regional Water Quality Control Board (NCRWQCB) for their review.

Groundwater Monitoring

Groundwater monitoring activities conducted for the October 2005 event included measuring depth to water (DTW) in MW-1 through MW-4 (Figure 2); collecting samples of groundwater for laboratory analyses from MW-2 and MW-4, onsite water-supply well DW-1A, and offsite water-supply well DW-3 (Figure 3); calculating groundwater-flow direction and gradient; evaluating the results of the analyses and calculations; and preparing this report.

Groundwater-level Measurements

On October 14, 2005, EC&A personnel measured DTW in MW-1 through MW-4. DTW below the top of well casing (TOC) in each well was measured to the nearest 0.01 foot (ft) with a water-level meter. The meter was cleaned and rinsed prior to taking measurements in each well. DTW was measured and recorded after the well caps were removed and groundwater in the wells was allowed to equilibrate for a minimum of 15 minutes. DTW in MW-1 through MW-4 ranged from 15.61 ft to 18.47 ft; the groundwater-flow direction and gradient at the site were calculated to be N38°W at 0.015 ft/ft (Table 1 and Figure 4).

Groundwater Field Logs containing the DTW measurements are in Appendix A. DTW data will be electronically submitted to the State GeoTracker Internet Database.

Monitoring Well Groundwater Sampling Procedures

On October 14, 2005, EC&A personnel collected groundwater samples from MW-2 and MW-4. Prior to collecting samples, the wells were purged with a submersible pump. Purged water was checked for the presence of free-floating product; free-floating product was not observed in water purged from the wells. Groundwater pH, temperature and electric conductivity were measured after purging each well-casing volume. Samples were collected from the wells after the water level returned to a minimum of 80% of the initially recorded level and/or sufficient water re-entered the wells. Purge volumes and groundwater-quality parameters are recorded on the Field Logs in Appendix A.

Groundwater samples were collected in new single-sample, disposable bailers fitted with disposable bottom-emptying devices to minimize water degassing. The samples were transferred from the bailers to properly labeled, laboratory-supplied, sterile sample containers, placed on ice and transported under chain-of-custody control to McCampbell Analytical, Inc. (MAI) for chemical analyses. MAI is a State-certified laboratory located in Pacheco, California.

Monitoring Well Sample Analyses and Results

Groundwater samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline (g) and benzene, toluene, ethylbenzene and xylenes (BTEX) by Analytical Methods SW8021B/8015Cm, and for methyl tert-butyl ether (MTBE) and other gasoline oxygenates and the lead scavengers 1,2-dibromoethane (EDB) and 1,2-dichloroethane (1,2-DCA) by Analytical Method SW8260B.

1,2-DCA, at 3.3 micrograms per liter ($\mu\text{g/l}$) in MW-2, was the only analyte detected in groundwater samples collected for this event.

The results of analyses of groundwater samples from the monitoring wells are summarized on Table 2. The sample results will be electronically submitted to the State GeoTracker Internet Database. A complete copy of the analytical laboratory report is included in Appendix B.

Water-supply Well Sampling

On October 14, 2005, EC&A personnel collected groundwater samples from onsite water-supply well DW-1A and offsite water-supply well DW-3, located at 4810 Occidental Road. The sample from DW-1A was collected from a hose bib by the appliance shop entrance, after the chlorination treatment system, and the sample from DW-3 was collected from a hose bib on the north side of the pump house. Water samples from DW-1A and DW-3 were collected after purging each well by running the pump for a minimum of 15 minutes. The samples were collected in sterile, laboratory-supplied sample containers which were labeled, placed on ice and transported under chain-of-custody control to MAI for chemical analyses.

Water-supply Well Sample Analyses and Results

The groundwater samples collected from the water-supply wells were analyzed for TPHg and BTEX by Analytical Methods SW8021B/8015Cm, and for MTBE and other gasoline oxygenates and the lead scavengers EDB and 1,2-DCA by Analytical Method SW8260B.

None of the analytes tested for were detected in the groundwater samples collected from DW-1A or DW-3.

The results of analyses of groundwater samples from the water-supply wells are summarized on Table 3. The sample results will be electronically submitted to the State GeoTracker Internet Database. A complete copy of the analytical laboratory report is included in Appendix B.

Decontamination Procedures

Sampling equipment was cleaned onsite with a low-phosphorous soap and water solution and double rinsed with tap water. Decontamination water and water-supply well purge water were placed in covered, properly labeled DOT 17H 55-gallon drums for temporary, onsite storage.

Ozone System Operation and Maintenance

For this quarter, EC&A personnel conducted O&M visits on August 18, September 21 and October 28, 2005. The panel was inspected, checked for leaks and maintained as needed. DTW, temperature, dissolved oxygen (DO) and/or oxidation reduction potential (ORP) were measured in monitoring wells MW-1 through MW-4 when possible. Table 4 summarizes monitoring well groundwater DO readings and other O&M data. Table 5 is a log of O&M visits to the site.

DO Measurements

DO concentrations have increased overall in wells MW-1, MW-2 and MW-4 since baseline (pretreatment) data were collected. DO has not increased overall in MW-3, which is located outside the zone of influence of the system. Since system startup on March 15, 2005, DO in MW-4, where high FHCs were consistently detected in the past, has ranged from 0.08 mg/l (April 6, 2005) to 1.20 mg/l. For the October 2005 event, the DO concentration was recorded at 5.70 mg/l.

Conclusions

Groundwater-flow direction at the site continues to be generally to the north-northwest. For the October 2005 event, 1,2-DCA was detected for the first time in MW-2 (3.3 µg/l). Of the 16 events prior to October 2005, only a one-time minor concentration of TPHg (130 µg/l, November 2001) and ethylbenzene and xylenes (0.54 µg/l and 2.0 µg/l, respectively, August 2003) were detected in MW-2.

Prior to the October 2005 event, monitoring well MW-4, located within 10 ft down-gradient of the former USTs excavation, had shown significant TPHg and BTEX concentrations. The October 2005 event was the first event for which concentrations of all analytes in MW-4 were ND. Figures 5 and 6 show groundwater elevations and TPHg and benzene concentrations over time in MW-4. Prior to October 2005, FHC concentrations in MW-4 were highest when groundwater elevations were low (November/December) and lowest when groundwater elevations were high (March/April).

TBA has been detected in groundwater from MW-4 at concentrations ranging from 7.4 µg/l (April 2005) to 95 µg/l (October 1999). 1,2-DCA has also been detected in groundwater from MW-4 at

concentrations ranging from 13 µg/l (February 2004) to 150 µg/l (April 1999). In October 2005, concentrations of TBA and 1,2-DCA in MW-4 were both ND.

The increase in DO and lack of FHCs in MW-4 for the October 2005 event suggests that ozone injection is impacting groundwater in the vicinity of this well, where the greatest FHC concentrations have previously been detected.

Recommendations and Schedule

Ozone system O&M visits should continue to be performed monthly as part of EC&A's regular O&M program to monitor and ensure that the ozone delivery system at the site is functioning properly. Quarterly groundwater monitoring should also continue at the site.

A quarterly monitoring event was performed on January 11, 2006, a report of which is in progress. The next quarterly monitoring event for the site is scheduled for April 2006. The April 2006 event should include measuring DTW, DO, ORP and other groundwater-quality parameters in wells MW-1 through MW-4, and collecting samples of groundwater for laboratory analyses from MW-2 and MW-4, DW-1A and DW-3 (Table 6).

Limitations

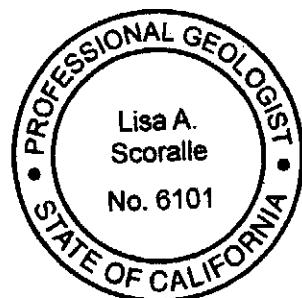
The conclusions presented in this report are professional opinions based on the information presented herein, which includes data generated by others. Whereas EC&A does not guarantee the accuracy of data supplied by third parties, we reserve the right to use this information in formulating our professional opinions. This report is intended only for the indicated purpose and project site. Conclusions and recommendations presented herein apply to site conditions existing at the time of our study. Changes in the conditions of the site property can occur with time because of natural processes or the works of man on the site or adjacent properties. Changes in applicable standards can also occur as the result of legislation or from the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond our control.

Thank you for allowing EC&A to provide environmental consulting services for you. Please call Lisa Scoralle, project manager, if you have any questions.

Sincerely,

Etta Jon VandenBosch
Environmental Scientist

Lisa Scoralle, PG #6101
Project Manager



Attachments: Figure 1 - Vicinity Map
Figure 2 - Site Map
Figure 3 - Well Location Plan

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Figure 4 - Groundwater Elevation Map, 14 October 2005

Figure 5 - Concentrations of TPHg in Monitoring Well MW-4

Figure 6 - Concentrations of Benzene in Monitoring Well MW-4

Table 1 - Water Level Measurements

Table 2 - Analytical Results - Groundwater Samples from Monitoring Wells

Table 3 - Analytical Results - Groundwater Samples from Water-supply Wells

Table 4 - Monitoring Well Groundwater Results for Dissolved Oxygen
Measurements

Table 5 - Ozone System Operations and Maintenance Log

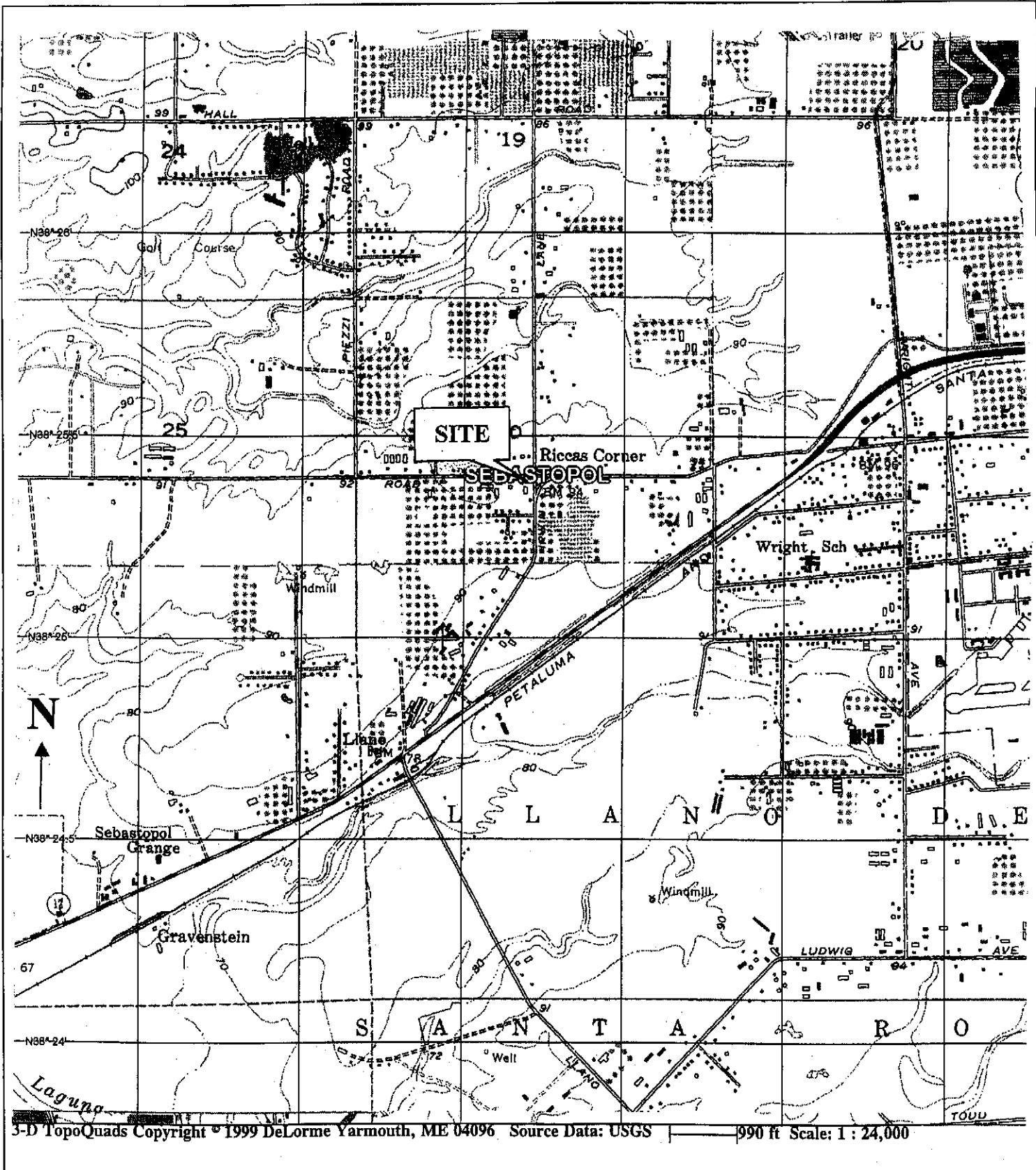
Table 6 - Groundwater Sampling Schedule for the Year 2006

Appendix A - Groundwater Field Logs

Appendix B - Analytical Laboratory Report

cc: Cliff Ives, County of Sonoma Department of Health Services
John Hogan, Hogan Properties

0232\QMR Oct05



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Vicinity Map
811 Irwin Lane
Santa Rosa, California

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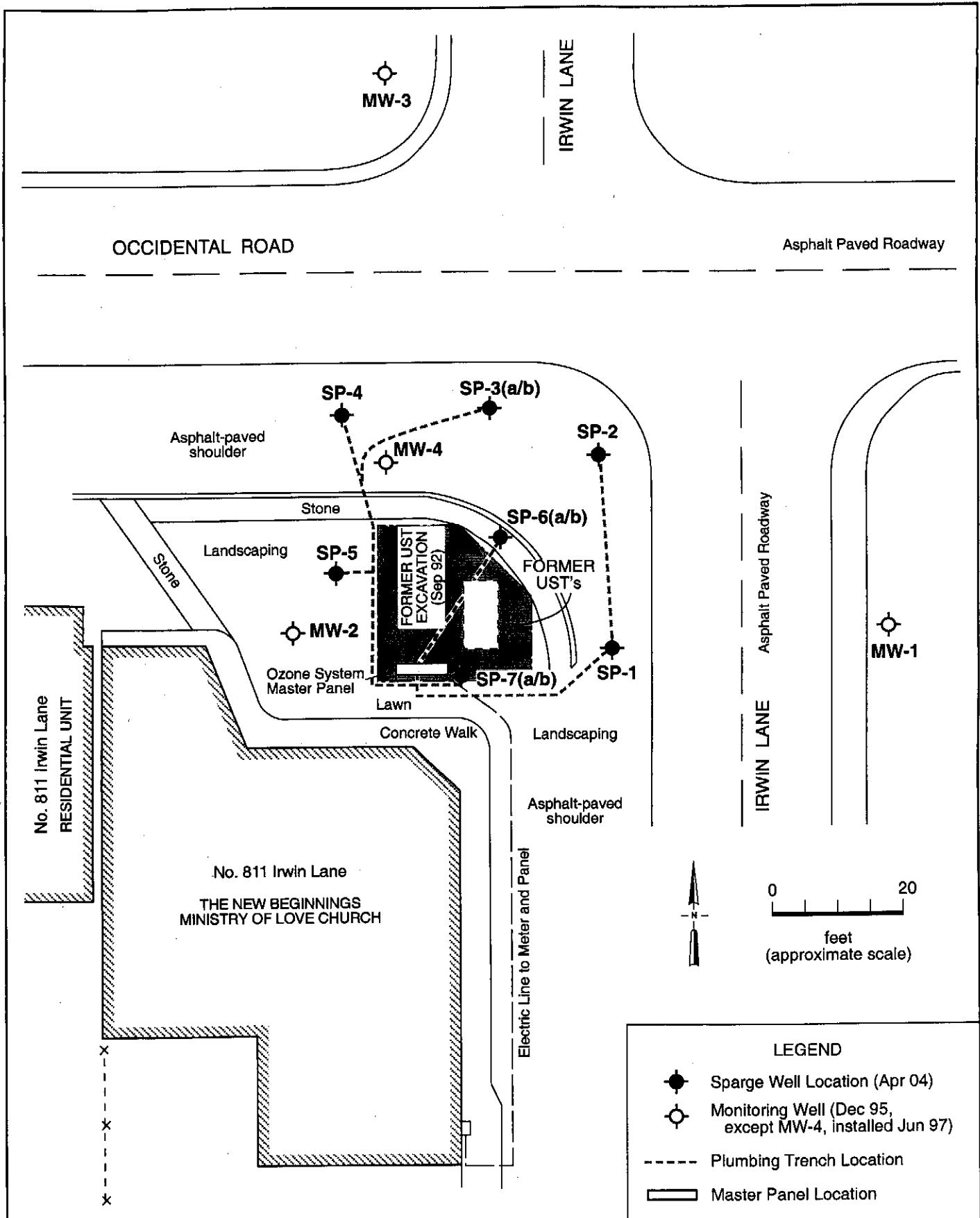
REVIEWED BY
Lisa Scoralle

DATE
10/05

REVISED DATE

REVISED DATE

1



(TRACE #333RG/18Apr05)

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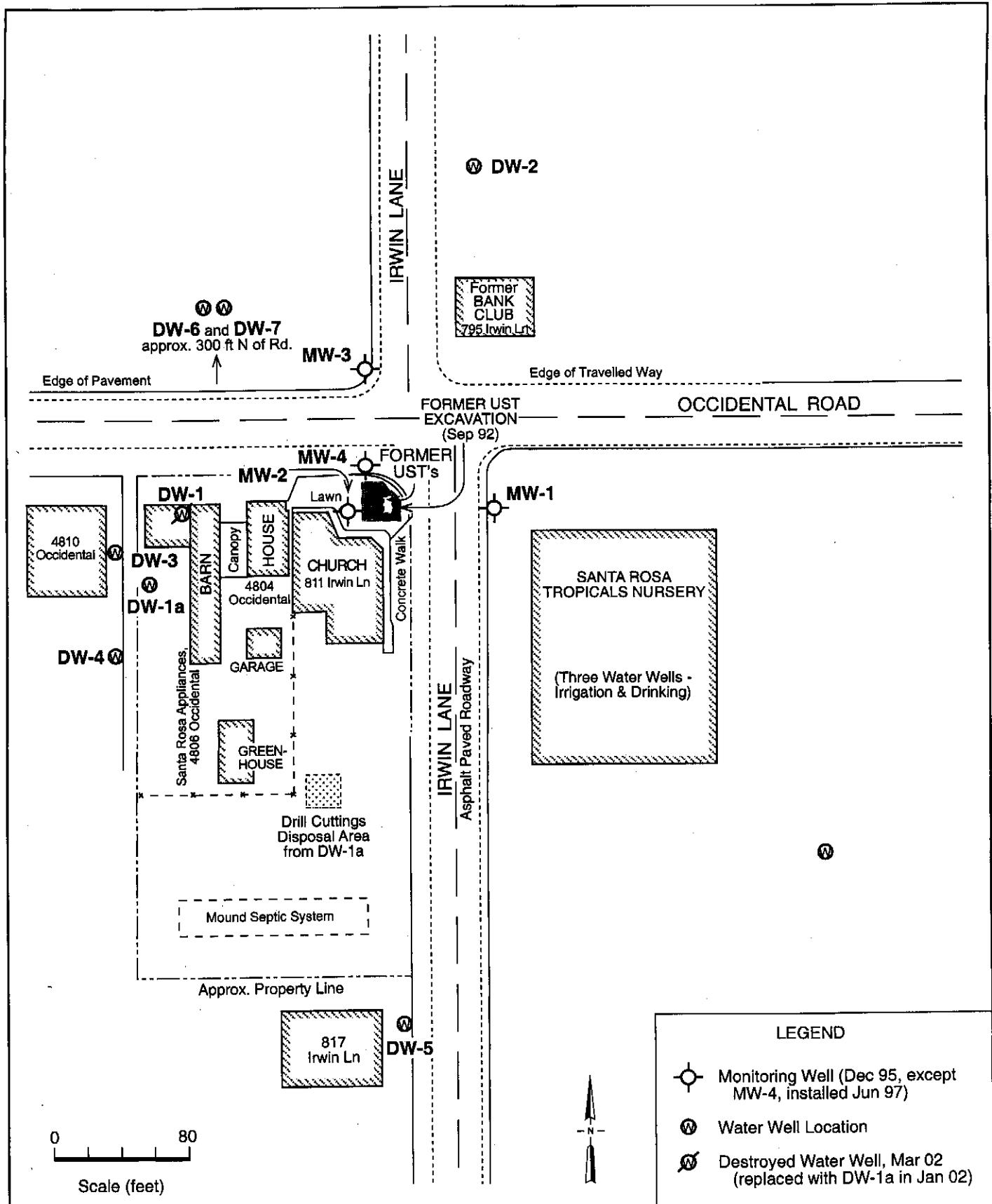
SITE MAP

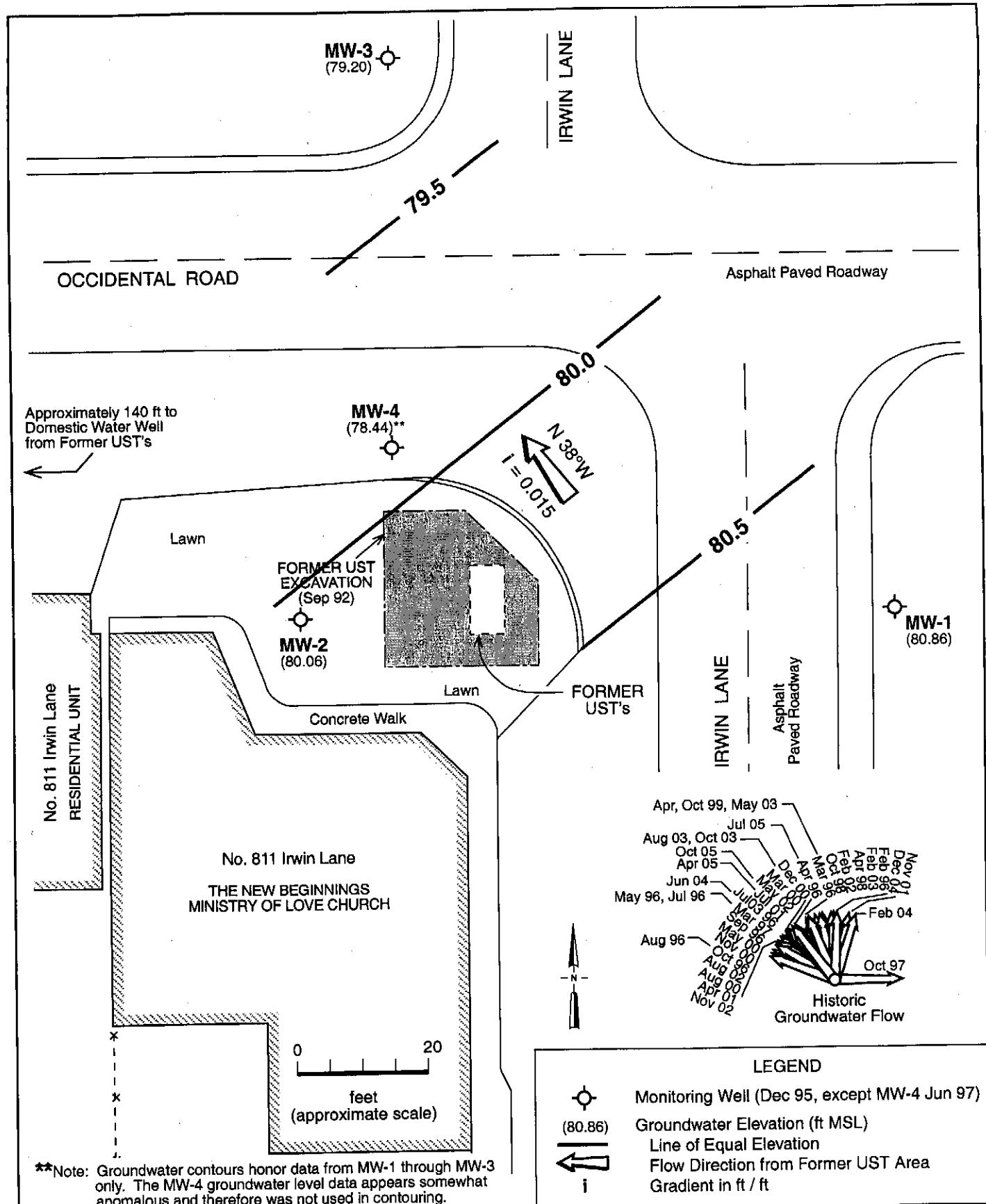
811 Irwin Lane
Santa Rosa, California

FIGURE

2

JOB NUMBER	REVIEWED BY	DATE	REVISED	SHEET NO.
0232, 002.95	EC&A, Lisa Scoralle	July 2002	April 2005	1 of 1





****Note:** Groundwater contours honor data from MW-1 through MW-3 only. The MW-4 groundwater level data appears somewhat anomalous and therefore was not used in contouring.

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GROUNDWATER ELEVATION MAP,

14 October 2005

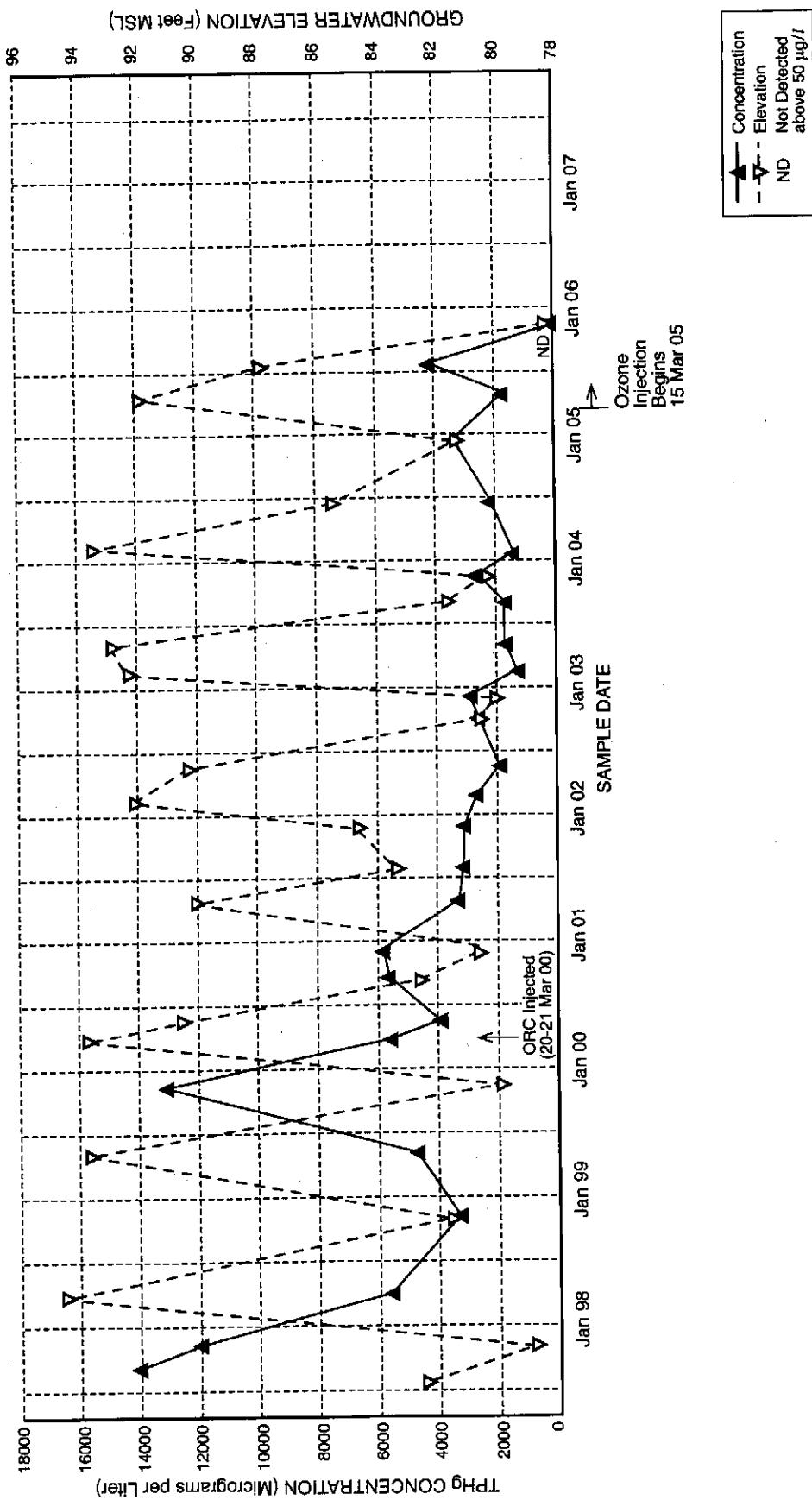
811 Irwin Lane
Santa Rosa, California

FIGURE

4

JOB NUMBER 0232, 002.95 REVIEWED BY EC&A, E.J. VandenBosch DATE May 2001 REVISED January 2006 SHEET NO. 1 of 1

**CONCENTRATIONS of TPHg
in Monitoring Well MW-4**
811 Irwin Lane
Santa Rosa, California



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TRACE#333/RG/03Jan06

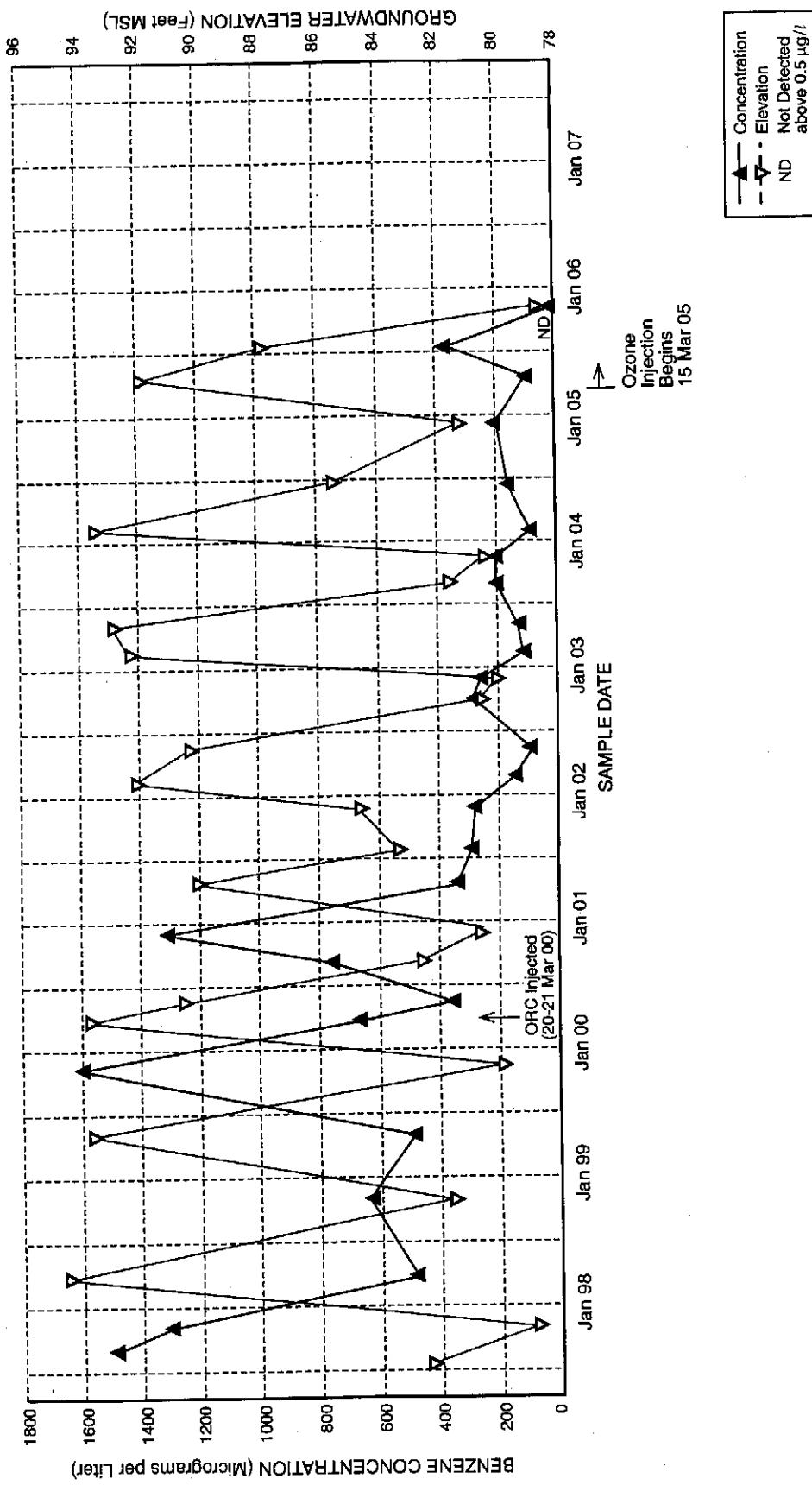
REVIEWED BY EC&A, E.J. VandenBosch DATE May 2006

JOB NUMBER 0232,002.95 REVISED January 2006

SHEET NO. 1 of 1

FIGURE
5

**CONCENTRATIONS of BENZENE
in Monitoring Well MW-4**
811 Irwin Lane
Santa Rosa, California



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JOB NUMBER 0232,002.95
REVIEWED BY EC&A, E.J. VandenBosch
DATE May 2002

FIGURE
6
TRACE#333/RG/DJan06
SHEET NO. 1 of 1

Table 1. Water Level Measurements
811 Irwin Lane, Santa Rosa, California

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Well ID	TOC Elevation (MSL)	Screened Interval (ft bgs)	Date	DTW (TOC)	Groundwater Elevation (MSL)
MW-1	96.47	7 - 22	02/09/96	1.48	94.99
MW-2	97.24	7 - 22	02/09/96	2.25	94.99
MW-3	96.34	7 - 22	02/09/96	1.66	94.68
Gradient = Due North, 0.004 ft/ft					
MW-1	96.47	7 - 22	03/08/96	1.12	95.35
MW-2	97.24	7 - 22	03/08/96	2.00	95.24
MW-3	96.34	7 - 22	03/08/96	1.34	95.00
Gradient = N21°W, 0.003 ft/ft					
MW-1	96.47	7 - 22	04/10/96	2.34	94.13
MW-2	97.24	7 - 22	04/10/96	3.36	93.88
MW-3	96.34	7 - 22	04/10/96	2.95	93.39
Gradient = N24°W, 0.007 ft/ft					
MW-1	96.47	7 - 22	05/10/96	4.81	91.66
MW-2	97.24	7 - 22	05/10/96	6.12	91.12
MW-3	96.34	7 - 22	05/10/96	5.58	90.76
Gradient = N50°W, 0.008 ft/ft					
MW-1	96.47	7 - 22	07/03/96	7.93	88.54
MW-2	97.24	7 - 22	07/03/96	9.45	87.79
MW-3	96.34	7 - 22	07/03/96	9.07	87.27
Gradient = N48°W, 0.012 ft/ft					
MW-1	96.47	7 - 22	07/23/96	9.84	86.63
MW-2	97.24	7 - 22	07/23/96	11.50	85.74
MW-3	96.34	7 - 22	07/23/96	11.17	85.17
Gradient = N50°W, 0.013 ft/ft					

Table 1. Water Level Measurements
811 Irwin Lane, Santa Rosa, California

Page 2 of 8

Well ID	TOC Elevation (MSL)	Screened Interval (ft bgs)	Date	DTW (TOC)	Groundwater Elevation (MSL)
MW-1	96.47	7 - 22	08/29/96	13.00	83.47
MW-2	97.24	7 - 22	08/29/96	14.70	82.54
MW-3	96.34	7 - 22	08/29/96	14.32	82.02
Gradient = N54°W, 0.013 ft/ft					
MW-1	96.47	7 - 22	09/24/96	14.50	81.97
MW-2	97.24	7 - 22	09/24/96	16.07	81.17
MW-3	96.34	7 - 22	09/24/96	15.66	80.68
Gradient = N51°W, 0.012 ft/ft					
MW-1	96.47	7 - 22	10/24/96	15.03	81.44
MW-2	97.24	7 - 22	10/24/96	16.75	80.49
MW-3	96.34	7 - 22	10/24/96	16.30	80.04
Gradient = N57°W, 0.013 ft/ft					
MW-1	96.47	7 - 22	03/12/97	4.84	91.63
MW-2	97.24	7 - 22	03/12/97	6.01	91.23
MW-3	96.34	7 - 22	03/12/97	5.52	90.82
Gradient = N50°W, 0.013 ft/ft					
MW-1	96.47	7 - 22	10/02/97	19.99	76.48
MW-2	97.24	7 - 22	10/02/97	17.89	79.35
MW-3	96.34	7 - 22	10/02/97	17.46	78.88
MW-4	97.00	7 - 22	10/02/97	18.11	78.89
Gradient = Due East, 0.033 ft/ft					
MW-1	96.47	7 - 22	04/08/98	1.57	94.90
MW-2	97.24	7 - 22	04/08/98	2.48	94.76
MW-3	96.34	7 - 22	04/08/98	1.92	94.42
MW-4	97.00	7 - 22	04/08/98	2.61	94.39
Gradient = N10°W, 0.009 ft/ft					

Table 1. Water Level Measurements
811 Irwin Lane, Santa Rosa, California

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Well ID	TOC Elevation (MSL)	Screened Interval (ft bgs)	Date	DTW (TOC)	Groundwater Elevation (MSL)
MW-1	96.47	7 - 22	10/13/98	13.65	82.82
MW-2	97.24	7 - 22	10/13/98	15.00	82.24
MW-3	96.34	7 - 22	10/13/98	14.75	81.59
MW-4	97.00	7 - 22	10/13/98	15.42	81.58
Gradient = N 16° W, 0.021 ft/ft					
MW-1	96.47	7 - 22	04/21/99	2.07	94.40
MW-2	97.24	7 - 22	04/21/99	3.12	94.12
MW-3	96.34	7 - 22	04/21/99	2.60	93.74
MW-4	97.00	7 - 22	04/21/99	3.24	93.76
Gradient = N 21°W, 0.0034 ft/ft					
MW-1	96.47	7 - 22	10/20/99	15.43	81.04
MW-2	97.24	7 - 22	10/20/99	16.81	80.43
MW-3	96.34	7 - 22	10/20/99	16.31	80.03
MW-4	97.00	7 - 22	10/20/99	17.02	79.98
Gradient = N 21°W, 0.0015 ft/ft					
MW-1	96.47	7 - 22	03/17/00	2.09	94.38
MW-2	97.24	7 - 22	03/17/00	3.01	94.23
MW-3	96.34	7 - 22	03/17/00	2.54	93.80
MW-4	97.00	7 - 22	03/17/00	3.14	93.86
Gradient = N 43°W, 0.007 ft/ft					
MW-1	96.47	7 - 22	05/09/00	4.60	91.87
MW-2	97.24	7 - 22	05/09/00	6.08	91.16
MW-3	96.34	7 - 22	05/09/00	5.94	90.40
MW-4	97.00	7 - 22	05/09/00	6.50	90.50
Gradient = N 55°W, 0.017 ft/ft					

Table 1. Water Level Measurements
811 Irwin Lane, Santa Rosa, California

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Well ID	TOC Elevation (MSL)	Screened Interval (ft bgs)	Date	DTW (TOC)	Groundwater Elevation (MSL)
MW-1	96.47	7 - 22	08/07/00	12.51	83.96
MW-2	97.24	7 - 22	08/07/00	14.20	83.04
MW-3	96.34	7 - 22	08/07/00	13.90	82.44
MW-4	97.00	7 - 22	08/07/00	14.55	82.45
Gradient = N 63°W, 0.018 ft/ft					
MW-1	96.47	7 - 22	11/27/00	15.06	81.41
MW-2	97.24	7 - 22	11/27/00	16.23	81.01
MW-3	96.34	7 - 22	11/27/00	15.92	80.42
MW-4	97.00	7 - 22	11/27/00	16.54	80.46
Gradient = N 54°W, 0.012 ft/ft					
MW-1	96.47	7 - 22	12/11/00	15.21	81.26
MW-2	97.24	7 - 22	12/11/00	16.33	80.91
MW-3	96.34	7 - 22	12/11/00	16.03	80.31
Gradient = N 35°W, 0.008 ft/ft **					
MW-1	96.47	7 - 22	04/12/01	5.40	91.07
MW-2	97.24	7 - 22	04/12/01	6.74	90.50
MW-3	96.34	7 - 22	04/12/01	6.04	90.30
MW-4	97.00	7 - 22	04/12/01	6.96	90.04
Gradient = N 66°W, 0.009 ft/ft					
MW-1	96.47	7 - 22	07/16/01	11.59	84.88
MW-2	97.24	7 - 22	07/16/01	13.59	83.65
MW-3	96.34	7 - 22	07/16/01	12.99	83.35
MW-4	97.00	7 - 22	07/16/01	13.78	83.22
Gradient = N 45°W, 0.025 ft/ft					

Table 1. Water Level Measurements
811 Irwin Lane, Santa Rosa, California

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Well ID	TOC Elevation (MSL)	Screened Interval (ft bgs)	Date	DTW (TOC)	Groundwater Elevation (MSL)
MW-1	96.47	7 - 22	11/26/01	11.19	85.28
MW-2	97.24	7 - 22	11/26/01	11.66	85.58
MW-3	96.34	7 - 22	11/26/01	11.96	84.38
MW-4	97.00	7 - 22	11/26/01	12.45	84.55
Gradient = N 13°E, 0.014 ft/ft **					
MW-1	96.47	7 - 22	02/06/02	3.67	92.80
MW-2	97.24	7 - 22	02/06/02	4.59	92.65
MW-3	96.34	7 - 22	02/06/02	4.34	92.00
MW-4	97.00	7 - 22	02/06/02	4.89	92.11
Gradient = N12°W, 0.008 ft/ft **					
MW-1	96.47	7 - 22	05/03/02	5.04	91.43
MW-2	97.24	7 - 22	05/03/02	6.50	90.74
MW-3	96.34	7 - 22	05/03/02	6.19	90.15
MW-4	96.91*	7 - 22	05/03/02	6.71	90.20
Gradient = N 44° W, 0.011 ft/ft **					
MW-1	96.47	7 - 22	08/30/02	14.51	81.96
MW-2	97.24	7 - 22	08/30/02	16.11	81.13
MW-3	96.34	7 - 22	08/30/02	15.67	80.67
MW-4	96.91	7 - 22	08/30/02	16.27	80.64
Gradient = N59°W, 0.017 ft/ft					
MW-1	96.47	7 - 22	11/13/02	15.14	81.33
MW-2	97.24	7 - 22	11/13/02	16.51	80.73
MW-3	96.34	7 - 22	11/13/02	16.31	80.03
MW-4	96.91	7 - 22	11/13/02	16.83	80.08
Gradient = N69°W, 0.016 ft/ft **					

Table 1. Water Level Measurements
811 Irwin Lane, Santa Rosa, California

Well ID	TOC Elevation (MSL)	Screened Interval (ft bgs)	Date	DTW (TOC)	Groundwater Elevation (MSL)
MW-1	96.47	7 - 22	02/06/03	3.62	92.85
MW-2	97.24	7 - 22	02/06/03	4.41	92.83
MW-3	96.34	7 - 22	02/06/03	4.31	92.03
MW-4	96.91	7 - 22	02/06/03	4.72	92.19
Gradient = N02°W, 0.01 ft/ft **					
MW-1	96.47	7 - 22	05/13/03	2.72	93.75
MW-2	97.24	7 - 22	05/13/03	3.79	93.45
MW-3	96.34	7 - 22	05/13/03	3.55	92.79
MW-4	96.91	7 - 22	05/13/03	4.01	92.90
Gradient = N22°W, 0.009 ft/ft **					
MW-1	96.47	7 - 22	08/26/03	13.43	83.04
MW-2	97.24	7 - 22	08/26/03	15.02	82.22
MW-3	96.34	7 - 22	08/26/03	14.74	81.60
MW-4	96.91	7 - 22	08/26/03	15.32	81.59
Gradient = N46°W, 0.013 ft/ft **					
MW-1	96.47	7 - 22	11/10/03	14.71	81.76
MW-2	97.24	7 - 22	11/10/03	16.16	81.08
MW-3	96.34	7 - 22	11/10/03	15.83	80.51
MW-4	96.91	7 - 22	11/10/03	16.49	80.42
Gradient = N44°W, 0.011 ft/ft **					
MW-1	96.47	7 - 22	02/04/04	2.58	93.89
MW-2	97.24	7 - 22	02/04/04	3.10	94.14
MW-3	96.34	7 - 22	02/04/04	3.17	93.17
MW-4	96.91	7 - 22	02/04/04	3.56	93.35
Gradient = N18°E, 0.0115 ft/ft **					

Table 1. Water Level Measurements
811 Irwin Lane, Santa Rosa, California

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Well ID	TOC Elevation (MSL)	Screened Interval (ft bgs)	Date	DTW (TOC)	Groundwater Elevation (MSL)
MW-1	96.47	7 - 22	06/07/04	9.36	87.11
MW-2	97.24	7 - 22	06/07/04	11.16	86.08
MW-3	96.34	7 - 22	06/07/04	10.94	85.40
MW-4	96.91	7 - 22	06/07/04	11.49	85.42
Gradient = N49°W, 0.015 ft/ft **					
MW-1	96.47	7 - 22	12/21/04	14.47	82.00
MW-2	97.24	7 - 22	12/21/04	15.17	82.07
MW-3	96.34	7 - 22	12/21/04	15.26	81.08
MW-4	96.91	7 - 22	12/21/04	15.63	81.28
Gradient = N03°E, 0.012 ft/ft**					
MW-1	96.47	7 - 22	04/28/05	3.69	92.78
MW-2	97.24	7 - 22	04/28/05	4.94	92.30
MW-3	96.34	7 - 22	04/28/05	4.49	91.85
MW-4	96.91	7 - 22	04/28/05	5.01	91.90
Gradient = N41°W, 0.008 ft/ft**					
MW-1	96.47	7 - 22	07/07/05	7.39	89.08
MW-2	97.24	7 - 22	07/07/05	8.85	88.39
MW-3	96.34	7 - 22	07/07/05	8.81	87.53
MW-4	96.91	7 - 22	07/07/05	9.10	87.81
Gradient = N35°W, 0.014 ft/ft**					
MW-1	96.47	7 - 22	10/14/05	15.61	80.86
MW-2	97.24	7 - 22	10/14/05	17.18	80.06
MW-3	96.34	7 - 22	10/14/05	17.14	79.20
MW-4	96.91	7 - 22	10/14/05	18.47	78.44
Gradient = N38°W, 0.015 ft/ft**					

**Table 1. Water Level Measurements
811 Irwin Lane, Santa Rosa, California**

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Notes

- TOC: Top of well casing
MSL: Referenced in feet relative to mean sea level
ft bgs: Feet below ground surface
DTW: Depth to water in feet from top of well casing
*: On May 1, 2002, all four wells were re-surveyed after monitoring well MW-4 was repaired by trimming the casing slightly.
**: Gradient was calculated using data from MW-1, MW-2 and MW-3 only; groundwater-level data for MW-4 appears to be somewhat anomalous and therefore was not used in contouring

Table 2. Analytical Results - Groundwater Samples from Monitoring Wells
811 Irwin Lane, Santa Rosa, California

Table 2. Analytical Results - Groundwater Samples from Monitoring Wells
811 Irwin Lane, Santa Rosa, California

**Table 2. Analytical Results - Groundwater Samples from Monitoring Wells
811 Irwin Lane, Santa Rosa, California**

Sample ID	Date	DTW (ft bgs)	TPHg (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE (µg/l)	1,2-DCA (µg/l)	DPE (µg/l)	TBA (µg/l)
MW-2 continued	08/30/02 ²	16.11	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/13/02 ²	16.51	ND	ND	ND	ND	ND	ND	ND	ND	ND
	02/06/03 ²	4.41	ND	ND	ND	ND	ND	ND	ND	ND	ND
	05/13/03 ²	3.79	ND	ND	ND	ND	ND	ND	ND	ND	ND
	08/26/03 ²	15.02	ND	ND	ND	0.54	2.0	ND	ND	ND	ND
	11/10/03 ²	16.16	ND	ND	ND	ND	ND	ND	ND	ND	ND
	02/04/04 ²	3.10	ND	ND	ND	ND	ND	ND	ND	ND	ND
	06/07/04 ²	11.16	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/21/04 ²	15.17	ND	ND	ND	ND	ND	ND	ND	ND	ND
	04/28/05 ²	4.94	ND	ND	ND	ND	ND	ND	ND	ND	ND
	07/07/05 ²	8.85	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/14/05 ²	17.18	ND	ND	ND	ND	ND	ND	3.3	ND	ND
MW-3	01/03/96 ¹	7.7	ND	ND	ND	ND	ND	NA	NA	NA	NA
	04/10/96 ¹	2.95	ND	ND	ND	ND	ND	NA	NA	NA	NA
	07/23/96 ¹	11.17	ND	ND	ND	ND	ND	NA	NA	NA	NA
	10/24/96	16.30	ND	ND	ND	ND	ND	NA	NA	NA	NA
	03/12/97	5.52	ND	ND	ND	ND	ND	NA	NA	NA	NA
	03/17/00	2.54	ND	ND	ND	ND	ND	NA	NA	NA	NA
	05/09/00	5.94	ND	ND	ND	ND	ND	NA	NA	NA	NA
	08/07/00	13.90	ND	ND	ND	ND	ND	NA	NA	NA	NA
	11/27/00 ²	15.92	ND	ND	0.51	ND	1.7	ND<1.0	ND	16	ND

**Table 2. Analytical Results - Groundwater Samples from Monitoring Wells
811 Irwin Lane, Santa Rosa, California**

Sample ID	Date	DTW (ft bgs)	TPHg ($\mu\text{g/l}$)	Benzene ($\mu\text{g/l}$)	Toluene ($\mu\text{g/l}$)	Ethyl- benzene ($\mu\text{g/l}$)	Total Xylenes ($\mu\text{g/l}$)	MTBE ($\mu\text{g/l}$)	1,2-DCA ($\mu\text{g/l}$)	DBPE ($\mu\text{g/l}$)	TBA ($\mu\text{g/l}$)
MW-3 continued											
04/12/01 ²	04/12/01 ²	6.04	ND	ND	ND	ND	ND	ND	ND	3.4	ND
11/26/01 ²	11/26/01 ²	11.96	ND	ND	ND	ND	ND	ND	ND	5.1	ND
02/06/02 ²	02/06/02 ²	4.34	ND	ND	ND	ND	ND	ND	ND	20	ND
08/30/02 ²	08/30/02 ²	15.67	ND	ND	ND	ND	ND	ND	ND	5.3	ND
11/13/02	11/13/02	16.31	NS	NS	NS	NS	NS	NS	NS	NS	NS
02/06/03 ²	02/06/03 ²	4.31	ND	ND	ND	ND	ND	ND	ND	16	ND
05/13/03	05/13/03	3.55	NS	NS	NS	NS	NS	NS	NS	NS	NS
08/26/03 ²	08/26/03 ²	14.74	ND	ND	ND	0.52	1.8	ND	ND	9.5	ND
11/10/03	11/10/03	15.83	NS	NS	NS	NS	NS	NS	NS	NS	NS
02/04/04 ²	02/04/04 ²	3.17	ND	ND	ND	ND	ND	ND	ND	ND	ND
06/07/04	06/07/04	10.94	NS	NS	NS	NS	NS	NS	NS	NS	NS
12/21/04 ²	12/21/04 ²	15.26	ND	ND	ND	ND	ND	ND	ND	4.2	ND
04/28/05	04/28/05	4.49	NS	NS	NS	NS	NS	NS	NS	NS	NS
07/07/05 ²	07/07/05 ²	8.81	ND	ND	ND	ND	ND	ND	ND	21	ND
10/14/05	10/14/05	17.14	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-4											
07/07/97	07/07/97	14.59	14,000	1500	63	460	1,300	ND<260	NA	NA	NA
10/02/97	10/02/97	18.11	12,000 ^a	1300	26	260	320	ND<160	NA	NA	NA
03/11/98	03/11/98	17.85	5700 ^a	500	11	150	130	ND<30	NA	NA	NA
10/13/98	10/13/98	15.42	3300 ^a	610	16	110	76	ND<20	NA	NA	NA
04/21/99 ²	04/21/99 ²	3.24	4700 ^a	500	20	200	300	ND<10	150	ND	ND
10/20/99 ²	10/20/99 ²	17.02	13,000 ^a	1600	38	260	240	ND<5.0	91	ND	95

Table 2. Analytical Results - Groundwater Samples from Monitoring Wells
811 Irwin Lane, Santa Rosa, California

**Table 2. Analytical Results - Groundwater Samples from Monitoring Wells
811 Irwin Lane, Santa Rosa, California**

Sample ID	Date	DTW (ft bgs)	TPHg ($\mu\text{g/l}$)	Benzene ($\mu\text{g/l}$)	Toluene ($\mu\text{g/l}$)	Ethy- benzene ($\mu\text{g/l}$)	Total Xylenes ($\mu\text{g/l}$)	MTBE ($\mu\text{g/l}$)	1,2-DCA ($\mu\text{g/l}$)	DIPE ($\mu\text{g/l}$)	TBA ($\mu\text{g/l}$)
Reporting Limits		50	0.5	0.5	0.5	0.5	0.5	5.0 ³	0.5 to 1.0	0.5 to 1.0	5.0

Notes:

- DTW: Depth to water from top of well casing
 TPHg: Total petroleum hydrocarbons as gasoline
 MTBE: Methyl tert-butyl ether; analyzed by EPA Method 8020 unless otherwise noted
 1,2-DCA: 1,2-dichloroethane
 DIPE: Di-isopropyl ether
 TBA: t-Butyl alcohol
 ft: Feet below ground surface
 bgs: Micrograms per liter
 $\mu\text{g/l}$: Not detected above the reporting limit
 ND: Not analyzed
 NA: Not sampled
 NS: Unmodified or weakly modified gasoline is significant
 a: Heavier gasoline range compounds are significant (aged gasoline?)
 b: Liquid sample that contains greater than ~5 vol. % sediment
 j: No recognizable pattern
 1: Sample also analyzed for total lead; result was ND
 2: Sample also analyzed for MTBE and other gasoline oxygenates and the lead scavengers ethylene dibromide (EDB) and 1,2-DCA by Analytical Method SW8260B. Results not reported above were all ND
 3: MTBE detection limit by Analytical Method SW8260B is either 0.5 $\mu\text{g/l}$ or 1.0 $\mu\text{g/l}$
 4: Sample also analyzed for MTBE and other gasoline oxygenates by Analytical Method SW8260B. Except for results reported above, all analytes were ND

**Table 3. Analytical Results - Groundwater Samples from Water-supply Wells
811 Irwin Lane, Santa Rosa, California**

Sample ID	Date	TPHg (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE (µg/l)	EDB (µg/l)	1,2-DCA (µg/l)	THF (µg/l)
DW-1	10/05/92 ¹	ND	ND	ND	ND	ND	NA	NA	NA	NA
DW-1	06/08/93 ¹	ND	ND	ND	ND	ND	NA	NA	NA	NA
DW-1	07/14/93 ¹	NA	NA	NA	NA	NA	NA	NA	NA	NA
DW-1	08/03/93 ¹	NA	NA	NA	NA	NA	NA	NA	NA	NA
DW-1	01/03/96 ¹	ND	NA	NA	NA	NA	NA	NA	NA	NA
DW-1	04/10/96 ¹	ND	ND	ND	ND	ND	8.6*	NA	NA	NA
RS-1	04/23/96 ¹	ND	ND	ND	ND	ND	7.3	NA	NA	NA
DW-1	07/23/96 ¹	ND	ND	ND	ND	ND	ND	NA	NA	NA
DW-1	10/24/96	ND	ND	ND	ND	ND	ND	NA	NA	NA
DW-1	03/12/97	ND	ND	ND	ND	ND	ND	NA	NA	NA
DW-1	10/02/97	ND	ND	ND	ND	ND	ND	NA	NA	NA
DW-1	03/11/98	ND	ND	ND	ND	ND	ND	NA	NA	NA
DW-1	10/13/98	ND	ND	ND	ND	ND	ND	NA	NA	NA
DW-1	04/21/99	ND	ND	ND	ND	ND	ND	NA	NA	NA
DW-1	07/13/99	ND	ND	ND	ND	ND	ND	NA	ND	ND
DW-1	10/20/99	ND	ND	ND	ND	ND	ND	NA	NA	NA
DW-1	05/09/00 ²	ND	ND	ND	ND	ND	2.1	ND	ND	NA
DW-1	11/27/00 ²	ND	ND	ND	ND	ND	1.8	ND	ND	NA
DW-1	12/11/00 ²	ND	ND	ND	ND	ND	1.9	ND	ND	NA
DW-1	12/13/00 ²	ND	ND	ND	ND	ND	1.4	ND	ND	NA
DW-1	01/08/01 ²	ND	ND	ND	ND	ND	1.2	ND	ND	NA

Table 3. Analytical Results - Groundwater Samples from Water-supply Wells
811 Irwin Lane, Santa Rosa, California

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811 Irwin Lane, Santa Rosa, California

Sample ID	Date	TPHg ($\mu\text{g/l}$)	Benzene ($\mu\text{g/l}$)	Toluene ($\mu\text{g/l}$)	Ethyl-benzene ($\mu\text{g/l}$)	Total Xylenes ($\mu\text{g/l}$)	MTBE ($\mu\text{g/l}$)	EDB ($\mu\text{g/l}$)	1,2-DCA ($\mu\text{g/l}$)	THF ($\mu\text{g/l}$)
DW-1A	02/06/03 ⁶	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-1A	03/05/03 ¹¹	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-1A	04/24/03 ¹¹	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-1A	05/13/03 ¹³	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-1A	08/26/03	NS	NS	NS	NS	NS	NS	NS	NS	NS
DW-1A	11/10/03	NS	NS	NS	NS	NS	NS	NS	NS	NS
DW-1A	02/04/04	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-1A	06/07/04	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-1A	12/21/04 ¹³	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-1A	04/28/05 ¹³	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-1A	07/07/05 ¹³	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-1A	10/14/05²	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-2	07/13/99	ND	ND	ND	ND	ND	ND	NA	NA	NA
DW-2	10/20/99	ND	ND	ND	ND	ND	ND	NA	NA	NA
DW-2	05/09/00	ND	ND	ND	ND	ND	ND	NA	NA	NA
DW-2	12/11/00 ²	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-2	08/26/03 ¹³	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-2	12/21/04 ¹³	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-2	07/13/05 ²	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW-3	11/10/99	ND	ND	ND	ND	ND	ND	NA	NA	NA
DW-3	05/09/00	ND	ND	ND	ND	ND	ND	NA	NA	NA

Table 3. Analytical Results - Groundwater Samples from Water-supply Wells
811 Irwin Lane, Santa Rosa, California

**Table 3. Analytical Results - Groundwater Samples from Water-supply Wells
811 Irwin Lane, Santa Rosa, California**

Sample ID	Date	TPHg ($\mu\text{g/l}$)	Benzene ($\mu\text{g/l}$)	Toluene ($\mu\text{g/l}$)	Ethy-benzene ($\mu\text{g/l}$)	Total Xylenes ($\mu\text{g/l}$)	MTBE ($\mu\text{g/l}$)	EDB ($\mu\text{g/l}$)	1,2-DCA ($\mu\text{g/l}$)	THF ($\mu\text{g/l}$)
DW-7	02/06/02	ND	ND	ND	ND	ND	ND	ND	NA	NA
Reporting Limits	50	0.5	0.5	0.5	0.5	0.5	5.0 ³	0.5 to 1.0	0.5 to 1.0	0.5

Notes

TPHg: Total petroleum hydrocarbons as gasoline
 MTBE: Methyl tert-butyl ether by EPA Method 8020 unless noted otherwise; reporting limit 5.0 $\mu\text{g/l}$

EDB: Ethylene dibromide by Analytical Method SW8260B

1,2-DCA: 1,2-dichloroethane by Analytical Method SW8260B

THF: Tetrahydrofuran by Analytical Method SW8260B

$\mu\text{g/l}$: Micrograms per liter

ND: Not detected above the reporting limit

NA: Not analyzed

NS: Not sampled; well inaccessible

DW-1: Onsite domestic water well - destroyed on March 19, 2002

DW-1A: Onsite domestic water well - installed in January 2002 to replace DW-1

DW-2: Offsite domestic water well located at 795 Irwin Lane

DW-3: Offsite domestic water well located at 4810 Occidental Road - installed in 1981 and currently active.

DW-4: Newly discovered offsite domestic water well located at 4810 Occidental Road - installed in 1961 and currently inactive.

DW-5: Offsite domestic water well located at 817 Irwin Lane

DW-6: Out-of-service water-supply well located at 4815 Occidental Road

DW-7: Out-of-service water-supply well located at 4815 Occidental Road

*: MTBE confirmed by Analytical Method SW8260B at 9.1 $\mu\text{g/l}$

1: Sample also analyzed for total lead. Organic lead at 1.3 milligrams per liter (mg/l) was reported in the sample collected on June 8, 1993, and total lead at 0.0052 mg/l was reported in the sample collected on July 14, 1993; all other results were ND.

2: Sample also analyzed for MTBE and other gasoline oxygenates and the lead scavengers EDB and 1,2-DCA by Analytical Method SW8260B. Results not reported above were all ND.

3: MTBE detection limit by Analytical Method SW8260B is either 0.5 $\mu\text{g/l}$ or 1 $\mu\text{g/l}$

4: Sample also analyzed for MTBE and other gasoline oxygenates and the lead scavengers EDB and 1,2-DCA, as well as volatile organics by Analytical Method SW8260B. Methyl ethyl ketone (MEK, or 2-butanone) was reported at 4.6 $\mu\text{g/l}$.

5: Sample analyzed for volatile organics by Analytical Method SW8260B.

6: Sample also analyzed for MTBE and other gasoline oxygenates and the lead scavengers EDB and 1,2-DCA, as well as volatile organics by Analytical Method SW8260B. All analytes were ND.

7: Sample also analyzed for MTBE and other gasoline oxygenates by Analytical Method SW8260B. All analytes were ND.

**Table 3. Analytical Results - Groundwater Samples from Water-supply Wells
811 Irwin Lane, Santa Rosa, California**

Notes, continued

- 8: Sample also analyzed for MTBE and other gasoline oxygenates and the lead scavengers EDB and 1,2-DCA, as well as volatile organics by Analytical Method SW8260B. In addition to THF results reported above, 2-butanone (MEK) was detected at 1.9 $\mu\text{g/l}$.
- 9: Sample also analyzed for volatile organics by Analytical Method SW8260B. Except for THF results reported above, all analytes were ND.
- 10: Sample also analyzed for MTBE and other gasoline oxygenates and the lead scavengers EDB and 1,2-DCA, as well as volatile organics by Analytical Method SW8260B. Except for THF results reported above, all analytes were ND.
- 11: Sample also analyzed for MTBE and other gasoline oxygenates and the lead scavengers EDB and 1,2-DCA, as well as volatile organics by Analytical Method SW8260B. All analytes were ND.
- 12: Sample also analyzed for MTBE and other gasoline oxygenates and the lead scavengers EDB and 1,2-DCA, as well as volatile organics by Analytical Method SW8260B. In addition to THF results reported above, chloroform was detected at 1.6 $\mu\text{g/l}$.
- 13: Sample also analyzed for MTBE and other gasoline oxygenates and the lead scavengers EDB and 1,2-DCA by Analytical Method SW8260B. Results for all analytes were ND.

**Table 4. Monitoring Well Groundwater Results for Dissolved Oxygen Measurements
811 Irwin Lane, Santa Rosa, California**

Well ID	Date	Depth to Water (feet)	Temperature (°F)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	System Clock (Total Hours)
MW-1	06/07/04	9.36	64.9	NM	0.23	NR
	12/21/04	14.47	64.6	159	0.85	NR
03/15/05	NM	NM	NM	NM	NM	8.40
03/16/05	NM	64.0	NM	1.56	16.16	
03/17/05	NM	64.0	NM	1.41	24.23	
03/24/05	NM	63.9	NM	0.54	84.31	
03/31/05	NM	64.0	NM	0.25	105.41	
04/06/05	NM	65.3	NM	1.00	166.77	
04/14/05	NM	65.4	NM	1.11	147.15	
04/28/05 *	3.69	NM	25	NM	591.31	
05/12/05	NM	65.2	NM	1.05	879.91	
05/19/05	NM	NM	NM	NM	900.47	
06/03/05	NM	65.1 ⁽¹⁾	NM	1.83	1138.43	
	NM	64.5 ⁽²⁾	NM	0.73	--	
07/07/05 *	7.39	66.2	177	4.80	NR	
07/26/05	NM	65.7	NM	0.69	2244.80	
08/18/05	NM	NM	NM	NM	2727.04	
09/21/05	NM	66.1	NM	0.55	3378.44	
10/28/05	NM	NM	NM	NM	4035.19	

**Table 4. Monitoring Well Groundwater Results for Dissolved Oxygen Measurements
811 Irwin Lane, Santa Rosa, California**

Well ID	Date	Depth to Water (feet)	Temperature (°F)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	System Clock (Total Hours)
MW-2	06/07/04	11.16	63.8	87	0.52	NR
	12/21/04	15.17	64.6	87	0.15	NR
03/15/05	NM	NM	NM	NM	NM	3.40
03/16/05	NM	65.4	NM	1.15	16.16	
03/17/05	NM	65.8	NM	1.10	24.23	
03/24/05	NM	64.9	NM	0.61	84.31	
03/31/05	NM	65.0	NM	0.41	105.41	
04/06/05	NM	62.5 ⁽²⁾	NM	1.27	166.77	
	NM	59.6 ⁽¹⁾	NM	2.60	--	
4/14/05	NM	63.1	NM	1.13	147.15	
04/28/05 *	4.94	62.1	139	0.33	591.31	
05/12/05	NM	63.3	NM	2.65	879.91	
05/19/05	NM	NM	NM	NM	900.47	
06/03/05	NM	62.1 ⁽¹⁾	NM	6.34	1138.43	
	NM	62.4 ⁽²⁾	NM	5.51	--	
07/07/05 *	8.85	63.7	190	2.45	NR	
07/26/05	NM	63.1	NM	5.25	2244.80	
08/18/05	NM	NM	NM	NM	2727.04	
09/21/05	NM	66.3	NM	4.31	3378.44	
10/14/05 *	17.18	69.0	167	3.04	NR	

Table 4. Monitoring Well Groundwater Results for Dissolved Oxygen Measurements
811 Irwin Lane, Santa Rosa, California

Well ID	Date	Depth to Water (feet)	Temperature (°F)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	System Clock (Total Hours)
MW-2 continued	10/28/05	NM	NM	NM	NM	4035.19
MW-3	06/07/04	10.94	64.5	NM	0.12	NR
	12/21/04	15.26	66.5	69	0.29	NR
	03/15/05	NM	NM	NM	NM	8.40
	03/16/05	NM	65.5	NM	0.17	16.16
	03/17/05	NM	65.6	NM	0.15	24.23
	03/24/05	NM	65.1	NM	0.14	84.31
	03/31/05	NM	65.1	NM	0.15	105.41
	04/06/05	NM	65.4	NM	0.13	166.77
	04/14/05	NM	65.6	NM	0.15	147.15
	04/28/05*	4.49	NM	14	NM	591.31
	05/12/05	NM	64.8	NM	0.12	879.91
	05/19/05	NM	NM	NM	NM	900.47
	06/03/05	NM	65.0 ⁽¹⁾	NM	1.80	1138.43
		NM	65.6 ⁽²⁾	NM	0.08	--
	07/07/05 *	8.81	67.2	178	0.08	NR
	07/26/05	NM	65.5	NM	0.11	2244.80
	08/18/05	NM	NM	NM	NM	2727.04
	09/21/05	NM	66.9	NM	0.12	3378.44
	10/28/05	NM	NM	NM	NM	4035.19

Table 4. Monitoring Well Groundwater Results for Dissolved Oxygen Measurements
811 Irwin Lane, Santa Rosa, California

Well ID	Date	Depth to Water (feet)	Temperature (°F)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	System Clock (Total Hours)
MW-4	06/07/04	11.49	64.9	8	0.17	NR
	12/21/04	15.63	66.7	8	0.13	NR
03/15/05	NM	NM	NM	NM	NM	3.40
03/16/05	NM	64.1	NM	0.15	16.16	
03/17/05	NM	64.0	NM	0.13	24.23	
03/24/05	NM	64.2	NM	0.13	84.31	
03/31/05	NM	64.4	NM	0.13	105.41	
04/06/05	NM	64.4 ⁽²⁾	NM	0.08	166.77	
	NM	62.6 ⁽¹⁾	NM	0.14	--	
04/14/05	NM	64.5	NM	0.10	147.15	
04/28/05*	5.01	65.2	-42	0.17	591.31	
05/12/05	NM	64.5	NM	0.38	879.91	
05/19/05	NM	NM	NM	NM	900.47	
06/03/05	NM	65.6 ⁽¹⁾	NM	1.20	1138.43	
	NM	65.4 ⁽²⁾	NM	0.45	--	
07/07/05 *	9.10	67.1	154	0.57	NR	
07/26/05	NM	65.3	NM	NM	2244.80	
08/18/05	NM	NM	NM	NM	2727.04	

Table 4. Monitoring Well Groundwater Results for Dissolved Oxygen Measurements
811 Irwin Lane, Santa Rosa, California

Well ID	Date	Depth to Water (feet)	Temperature (°F)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	System Clock (Total Hours)
MW-4 continued	09/21/05	NM	67.1	NM	0.98	3378.44
	10/14/05 *	18.47	69.2	62	5.70	NR
	10/28/05	NM	NM	NM	NM	4035.19

Notes

- *: Degrees Fahrenheit
- mg/l: Milligrams per liter
- mV: Millivolts
- DO: Dissolved oxygen
- ORP: Oxidation reduction potential
- *: Combined O&M and quarterly sampling event
- NM: Not measured
- NR: Not recorded
- (1): DO and temperature measurements collected from ±2 ft below the top of the water column
- (2): DO and temperature measurements collected from ±2 ft above the bottom of the well casing

Table 5. Ozone System Operation & Maintenance Log
811 Irwin Lane, Santa Rosa, California

Date	Comments
06/07/04	Baseline readings prior to system start-up (down-hole probe @ 22 feet below ground surface [bgs])
12/21/04	Second set of baseline readings
03/15/05	Complete system installation; system start-up; program; check for leaks
03/16/05	System off; reset; replace 3B well-head valve
03/17/05	System running; check for leaks
03/24/05	System on rest cycle during programmed run time; ozone not tripped; manually start system
03/31/05	System on rest cycle when programmed to start; reset and reprogram timer; manually start; check for leaks
04/06/05	System running; manually restart; reprogram timer; high groundwater level (~1 ft bgs)
04/14/05	System running; high groundwater table (~1-2 ft bgs)
04/27-28/05	System turned off (4/27) for combined O&M and quarterly sampling event(4/28); check for leaks; dust buildup noted in panel, suggest raising panel
05/12/05	System running; monitor
05/19/05	System down; main power switch melt down. Rewire main power switch and restart.
06/02-03/05	Raised and remounted panel ±4 ft above grade, DO readings taken from ±2 ft below top of water column and ± 2 ft above bottom of well casing; system running; clean panel and intake tube
07/07/05	Quarterly sampling event with O&M data (DO and ORP readings) taken during purging
07/26/05	System running; check for leaks; vacuum panel, clean intake hose
08/18/05	System running; check pressures; shut system down to install auto restart module; start up & test panel; clean compressor; new tenant reports panel too noisy, suggest enclosing in cabinet
09/21/05	System running; open compressor, spray with Teflon and reassemble; clean intake tube
10/28/05	System running; reprogram timer (70 minute run times per cycle)

**Table 6. Groundwater Sampling Schedule for 2006
811 Irwin Lane, Santa Rosa, California**

Well	January	February	March	April	May	June	July	August	September	October	November	December
MW-1	X						X					
MW-2	X			X			X					X
MW-3	X						X					
MW-4	X			X			X					X
DW-1A	X			X			X					X
DW-2							X					
DW-3	X				X				X			

DW-1A: Onsite domestic water well, 811 Irwin Lane

DW-2: Offsite domestic water well located at 795 Irwin Lane (Former Bank Club); not currently in use

DW-3: Offsite domestic water well located at 4810 Occidental Road, adjacent to subject property

All samples will be analyzed for total petroleum hydrocarbons as gasoline by Analytical Method SW8015Cm, benzene, toluene, ethylbenzene and xylenes by Analytical Method SW8021B, and methyl tert-butyl ether and other gasoline oxygenates and lead scavengers by Analytical Method 8260B.

Appendix A

Groundwater Field Logs

DAILY FIELD RECORD

Page 1 of _____

Project and Task Number:	0232	Date:	10-14-05
Project Name:	Richard Winter Halder	Field Activity:	Ground Water Monitoring
Location:	811 IRWIN Lane	Weather:	
Time of OVM Calibration:			

Name	Company	Time In	Time Out
Cole H	ECTA		

DRUM#ID	DESCRIPTION OF EQUIPMENT AND ACTIVITY	LOCATION

TIME	ACTIVITIES
	Load order mw-2,mw-4Dw,-3Dw,-1A
	Depart
12.21	ONSITE - OPEN all wells, Setup Decon, Take Depth of Waters MW-1 - 15.61 at 1:05 PM MW-3 - 17.14 at 1:09 PM MW-2 - 17.18 at 1:15 PM MW-4 - 18.47
	Calc GWF logs
	Begin Purging wells in order
	Allow Time for Recharge
	Take Post Purge Depth of Waters
	Sample wells in order
	CLOSE AND lock wells, Clean up Site
	Depart
	Meter 27.13 on ozone unit

FIELD LOG

<input checked="" type="checkbox"/> GROUNDWATER	<input type="checkbox"/> SURFACE WATER	<input type="checkbox"/> DOMESTIC WATER	<input type="checkbox"/> IRRIGATION WATER	<input type="checkbox"/> WELL DEVELOPMENT
Project No: 0232			Field point name: MW-2	
Global ID: T0609700371			Well depth from TOC: 32 Feet	
Project location: 811 Irwin Lane			Well diameter: <input checked="" type="checkbox"/> 2" <input type="checkbox"/> 4" <input type="checkbox"/> 6" <input type="checkbox"/> Other:	
Date: 10-14-05			Product level from TOC: ND	
Time: 12:00 Noon			Water level from TOC: 17.18	
Recorded by: C. Hute			Screened interval: 7-22	
Purge time (duration):			Well elevation (TOC): 97.24	

WEATHER

Wind: 0-5	Precip. in last 5 days: N
-----------	---------------------------

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING

<input checked="" type="checkbox"/> 2" well = 0.17 gal/ft 4.82	<input type="checkbox"/> 6" well = 1.47 gal/ft	Gallons in 1 well volume: .82
<input type="checkbox"/> 4" well = 0.66 gal/ft	<input type="checkbox"/> " well = gal/ft	Total gallons removed: .8
		Well volumes removed: 1

CALIBRATION

Parameter	Time	Calibration	Before Sampling	Time	After Sampling
EC:					

FIELD MEASUREMENTS

Time	pH	EC	Temp °F	ORP mV	D O mg/l	Case Volume gal.	Appearance
6.53	13.20	69°	167	3.04	1/.8	Low turb NO gas NO screen	
					2/1.6		
					3/2.7		
					/		

Notes: Well Ran dry at 8 Gallons cycle Purge to get meter readings.

Water level after purging below TOC:	80% of original water level below TOC:
--------------------------------------	--

Water level before sampling below TOC:	17.5
--	------

Appearance of sample:	Time: 301
-----------------------	-----------

<input type="checkbox"/> Bailer: Type:	GPM:	<input checked="" type="checkbox"/> Pump: ES-40	Type: Submersible	GPM: 1-2
<input type="checkbox"/> Dedicated: Type:	GPM:	Decontamination method: Liquinox wash, double rinse		

Sample analysis:	<input checked="" type="checkbox"/> TPHg	<input type="checkbox"/> TPHd	<input type="checkbox"/> TPH	<input checked="" type="checkbox"/> BTEX	<input checked="" type="checkbox"/> 7 oxygenates	<input checked="" type="checkbox"/> Lead scavengers	<input type="checkbox"/> VOCs	<input type="checkbox"/> Nitrates
------------------	--	-------------------------------	------------------------------	--	--	---	-------------------------------	-----------------------------------

EPA Method:								
-------------	--	--	--	--	--	--	--	--

Other:								
--------	--	--	--	--	--	--	--	--

LABORATORY: <input checked="" type="checkbox"/> McCampbell Analytical	<input type="checkbox"/> Other:
---	---------------------------------

FIELD LOG

<input checked="" type="checkbox"/> GROUNDWATER	<input type="checkbox"/> SURFACE WATER	<input type="checkbox"/> DOMESTIC WATER	<input type="checkbox"/> IRRIGATION WATER	<input type="checkbox"/> WELL DEVELOPMENT			
Project No: 0232		Field point name: MW-4					
Global ID: T0609700371		Well depth from TOC: 22 Feet					
Project location: 811 Irwin Lane		Well diameter: <input checked="" type="checkbox"/> 2" <input type="checkbox"/> 4" <input type="checkbox"/> 6" <input type="checkbox"/> Other:					
Date: 10-14-05		Product level from TOC: ND					
Time: 12:00 NOON		Water level from TOC: 18.47					
Recorded by: Cole Hute		Screened interval: 7-22					
Purge time (duration):		Well elevation (TOC): 96.91					
WEATHER							
Wind: 0-5		Precip. in last 5 days: N					
VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING							
<input checked="" type="checkbox"/> 2" well = 0.17 gal/ft 3.53		<input type="checkbox"/> 6" well = 1.47 gal/ft		Gallons in 1 well volume: 160			
<input type="checkbox"/> 4" well = 0.66 gal/ft		<input type="checkbox"/> " well = gal/ft		Total gallons removed: 8 Well volumes removed: 1			
CALIBRATION							
Parameter	Time	Calibration	Before Sampling	Time			
EC:							
FIELD MEASUREMENTS							
Time	pH	EC	Temp °F	ORP mV	D O mg/l	Case Volume gal.	Appearance
	7.05	476.5	69.2	62	5.70	1/.6	Low TURB NO odors NO screen
						2/1.2	
						3/1.8	
Notes: Ran Dry at .6 Gal cycle Purge to get meter readings							
Water level after purging below TOC:		80% of original water level below TOC:			9		
Water level before sampling below TOC:		18.5			Time: 318		
Appearance of sample:							
<input type="checkbox"/> Bailer:	Type:	GPM:	<input checked="" type="checkbox"/> Pump: ES-410	Type: Submersible	GPM: 1-2		
<input type="checkbox"/> Dedicated:	Type:	GPM:	Decontamination method: Liquinox wash, double rinse				
Sample analysis:	<input checked="" type="checkbox"/> TPHg	<input type="checkbox"/> TPHd	<input type="checkbox"/> TPH	<input checked="" type="checkbox"/> BTEX	<input checked="" type="checkbox"/> 7 oxygenates	<input checked="" type="checkbox"/> Lead scavengers	<input type="checkbox"/> VOCs
EPA Method:							
Other:							
LABORATORY: <input checked="" type="checkbox"/> McCampbell Analytical	<input type="checkbox"/> Other:						

FIELD LOG

<input checked="" type="checkbox"/> GROUNDWATER	<input type="checkbox"/> SURFACE WATER	<input checked="" type="checkbox"/> DOMESTIC WATER	<input type="checkbox"/> IRRIGATION WATER	<input type="checkbox"/> WELL DEVELOPMENT
Project No: 0232		Field point name: DW-1A		
Global ID: T0609700371		Well depth from TOC:		
Project location: Bill Irwin home		Well diameter: <input type="checkbox"/> 2" <input type="checkbox"/> 4" <input type="checkbox"/> 6" <input type="checkbox"/> Other:		
Date: 10-14-05		Product level from TOC:		
Time:		Water level from TOC:		
Recorded by: C. Hute		Screened interval:		
Purge time (duration):		Well elevation (TOC):		

WEATHER

Wind: 0-5	Precip. in last 5 days: N
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VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING

<input type="checkbox"/> 2" well = 0.17 gal/ft	<input type="checkbox"/> 6" well = 1.47 gal/ft	Gallons in 1 well volume:
<input type="checkbox"/> 4" well = 0.66 gal/ft	<input type="checkbox"/> " well = gal/ft	Total gallons removed: Well volumes removed:

CALIBRATION

Parameter	Time	Calibration	Before Sampling	Time	After Sampling
EC:					

FIELD MEASUREMENTS

Time	pH	EC	Temp °F	ORP mV	D O mg/l	Case Volume gal:	Appearance
					1/		
					2/		
					3/		
					/		

Notes: Run Pump 15 min. Prior to taking Sample
Collect Sample From hose bib in Front of Appliance Shop

Water level after purging below TOC:	80% of original water level below TOC:
--------------------------------------	--

Water level before sampling below TOC:	Time: 3:30
--	------------

Appearance of sample: Clear	Time: 3:30
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<input type="checkbox"/> Bailer:	Type:	GPM:	<input checked="" type="checkbox"/> Pump: ES-40	Type: Submersible	GPM: 1-2
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<input checked="" type="checkbox"/> Dedicated:	Type:	GPM: 156pm	Decontamination method: Liquinox wash, double rinse		
--	-------	------------	---	--	--

Sample analysis:	<input type="checkbox"/> TPHg	<input type="checkbox"/> TPHd	<input type="checkbox"/> TPH	<input checked="" type="checkbox"/> BTEX	<input checked="" type="checkbox"/> 7 oxygenates	<input checked="" type="checkbox"/> Lead scavengers	<input type="checkbox"/> VOCs	<input type="checkbox"/> Nitrates
------------------	-------------------------------	-------------------------------	------------------------------	--	--	---	-------------------------------	-----------------------------------

EPA Method:								
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Other:								
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LABORATORY: <input checked="" type="checkbox"/> McCampbell Analytical	<input type="checkbox"/> Other:
---	---------------------------------

FIELD LOG

<input checked="" type="checkbox"/> GROUNDWATER	<input type="checkbox"/> SURFACE WATER	<input checked="" type="checkbox"/> DOMESTIC WATER	<input type="checkbox"/> IRRIGATION WATER	<input type="checkbox"/> WELL DEVELOPMENT			
Project No: 0232		Field point name: DW-3					
Global ID: T0609700371		Well depth from TOC:					
Project location: 811 Irwin Lane		Well diameter: <input type="checkbox"/> 2" <input type="checkbox"/> 4" <input type="checkbox"/> 6" <input type="checkbox"/> Other:					
Date: 10-14-05		Product level from TOC:					
Time:		Water level from TOC:					
Recorded by: C. Hute.		Screened interval:					
Purge time (duration):		Well elevation (TOC):					
WEATHER							
Wind: 0-5		Precip. in last 5 days: N					
VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING							
<input type="checkbox"/> 2" well = 0.17 gal/ft		<input type="checkbox"/> 6" well = 1.47 gal/ft		Gallons in 1 well volume:			
<input type="checkbox"/> 4" well = 0.66 gal/ft		<input type="checkbox"/> " well = gal/ft		Total gallons removed:			
CALIBRATION							
Parameter	Time	Calibration	Before Sampling	Time			
EC:							
FIELD MEASUREMENTS							
Time	pH	EC	Temp °F	ORP mV	D O mg/l	Case Volume gal.	Appearance
					1/	water	
					2/		
					3/		
					/		
Notes: Run Pump 15 min Prior to taking Sample Collect Sample from North side of Pump house Collected from hose bib NOT hose!							
Water level after purging below TOC:		80% of original water level below TOC:					
Water level before sampling below TOC:							
Appearance of sample: Clear Time: 3:35							
<input type="checkbox"/> Bailer:	Type:	GPM:	<input checked="" type="checkbox"/> Pump: ES-40	Type: Submersible	GPM: 1-2		
<input checked="" type="checkbox"/> Dedicated:	Type: 15GPM	GPM:	Decontamination method: Liquinox wash, double rinse				
Sample analysis:	<input type="checkbox"/> TPHg	<input type="checkbox"/> TPHd	<input type="checkbox"/> TPH	<input checked="" type="checkbox"/> BTEX	<input checked="" type="checkbox"/> 7 oxygenates	<input checked="" type="checkbox"/> Lead scavengers	<input type="checkbox"/> VOCs
EPA Method:							
Other:							
LABORATORY:	<input checked="" type="checkbox"/> McCampbell Analytical		<input type="checkbox"/> Other:				

Appendix B

Analytical Laboratory Report

RECEIVED
 OCT 31 2005
 BY:



McCampbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
 Telephone : 925-798-1620 Fax : 925-798-1622
 Website: www.mccampbell.com E-mail: main@mccampbell.com

Edd Clark & Associates, Inc. 320 Professional Center Ste. 215 Rohnert Park, CA 94928	Client Project ID: #0232; Richard Winterhalder 811 Irwin Lane	Date Sampled: 10/14/05
		Date Received: 10/17/05
	Client Contact: Cole Hute	Date Reported: 10/21/05
	Client P.O.:	Date Completed: 10/21/05

WorkOrder: 0510298

October 21, 2005

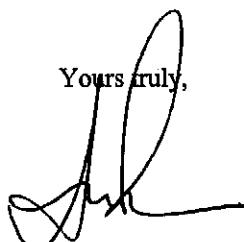
Dear Cole:

Enclosed are:

- 1). the results of 4 analyzed samples from your #0232; Richard Winterhalder 811 Irwin Lane project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,


Angela Rydelius, Lab Manager



McCampbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
Website: www.mccampbell.com E-mail: main@mccampbell.com

Edd Clark & Associates, Inc. 320 Professional Center Ste. 215 Rohnert Park, CA 94928	Client Project ID: #0232; Richard Winterhalder 811 Irwin Lane	Date Sampled: 10/14/05
		Date Received: 10/17/05
	Client Contact: Cole Hute	Date Extracted: 10/17/05
	Client P.O.:	Date Analyzed: 10/17/05

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE*

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0510298

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	1	µg/L
	S	NA	NA	NA	NA	NA	NA	1	mg/K

* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request.



McCampbell Analytical, Inc.

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Edd Clark & Associates, Inc.
320 Professional Center Ste. 215
Rohnert Park, CA 94928

Client Project ID: #0232; Richard
Winterhalder 811 Irwin Lane

Date Sampled: 10/14/05

Date Received: 10/17/05

Client Contact: Cole Hute

Date Extracted: 10/19/05-10/20/05

Client P.O.:

Date Analyzed: 10/19/05-10/20/05

Oxygenated Volatile Organics + EDB and 1,2-DCA by P&T and GC/MS*

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0510298

Lab ID	0510298-001B	0510298-002B	0510298-003B	0510298-004B	Reporting Limit for DF =1
Client ID	MW-2	MW-4	DW-1A	DW-3	
Matrix	W	W	W	W	
DF	1	1	1	1	
Compound	Concentration				ug/kg µg/L
tert-Amyl methyl ether (TAME)	ND	ND	ND	ND	NA 0.5
t-Butyl alcohol (TBA)	ND	ND	ND	ND	NA 5.0
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	NA 0.5
1,2-Dichloroethane (1,2-DCA)	3.3	ND	ND	ND	NA 0.5
Diisopropyl ether (DIPE)	ND	ND	ND	ND	NA 0.5
Ethanol	ND	ND	ND	ND	NA 50
Ethyl tert-butyl ether (ETBE)	ND	ND	ND	ND	NA 0.5
Methanol	ND	ND	ND	ND	NA 500
Methyl-t-butyl ether (MTBE)	ND	ND	ND	ND	NA 0.5

Surrogate Recoveries (%)

%SS1:	118	115	114	116	
Comments					

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.



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QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0510298

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 18550		Spiked Sample ID: 0510291-002A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
TPH(btex) ^E	ND	60	107	112	4.29	111	108	2.69	70 - 130	70 - 130
MTBE	ND	10	94	94.6	0.667	96.8	97.1	0.328	70 - 130	70 - 130
Benzene	ND	10	85.7	92.2	7.34	92.1	95.5	3.70	70 - 130	70 - 130
Toluene	ND	10	86.7	93.7	7.81	93.3	96.1	2.94	70 - 130	70 - 130
Ethylbenzene	ND	10	89.5	94.7	5.57	96.5	95.4	1.22	70 - 130	70 - 130
Xylenes	ND	30	90.7	94.7	4.32	99.3	95.3	4.11	70 - 130	70 - 130
%SS:	101	10	93	96	2.77	95	100	4.49	70 - 130	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 18550 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0510298-001A	10/14/05 3:21 PM	10/17/05	10/17/05 9:27 PM	0510298-002A	10/14/05 3:18 PM	10/17/05	10/17/05 9:56 PM
0510298-003A	10/14/05 3:30 PM	10/17/05	0/17/05 10:26 PM	0510298-004A	10/14/05 3:35 PM	10/17/05	0/17/05 10:56 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

^E TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not applicable or not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS Certification No. 1644 M QA/QC Officer



McCampbell Analytical, Inc.

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Website: www.mccampbell.com E-mail: main@mccampbell.com

QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0510298

EPA Method: SW8260B		Extraction: SW5030B			BatchID: 18578			Spiked Sample ID: 0510291-001B		
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
tert-Amyl methyl ether (TAME)	ND	10	99.3	93.3	6.20	96	95	1.10	70 - 130	70 - 130
t-Butyl alcohol (TBA)	ND	50	105	103	2.16	88.1	89.4	1.46	70 - 130	70 - 130
1,2-Dibromoethane (EDB)	ND	10	103	99.4	3.78	101	103	1.77	70 - 130	70 - 130
1,2-Dichloroethane (1,2-DCA)	ND	10	116	116	0	117	118	0.591	70 - 130	70 - 130
Diisopropyl ether (DIPE)	ND	10	118	114	3.27	112	114	2.06	70 - 130	70 - 130
Ethanol	ND	500	99.8	109	8.75	110	109	0.253	70 - 130	70 - 130
Ethyl tert-butyl ether (ETBE)	ND	10	103	99	3.73	98.6	99.5	0.943	70 - 130	70 - 130
Methanol	ND	2500	100	99.2	1.24	101	101	0	70 - 130	70 - 130
Methyl-t-butyl ether (MTBE)	ND	10	109	107	2.11	106	107	0.535	70 - 130	70 - 130
%SS1:	106	10	111	113	1.73	110	108	1.73	70 - 130	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 18578 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0510298-001B	10/14/05 3:21 PM	10/19/05	0/19/05 10:36 AM	0510298-002B	10/14/05 3:18 PM	10/19/05	10/19/05 3:27 PM
0510298-003B	10/14/05 3:30 PM	10/19/05	10/19/05 4:10 PM	0510298-004B	10/14/05 3:35 PM	10/20/05	10/20/05 3:28 AM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

0510298

Edd Clark &
Associates, Inc.

Environmental
Consultants

Chain of Custody Report

P.O. Box 3039, Rohnert Park, CA 94927
Tel: (707) 792-9500 (800) 474-1448 Fax: (707) 792-9504

Samplers Printed Cole Hute

McCampbell Analytical, Inc.



110 Second Avenue South, #D7
Pacheco, CA 94553-5560
(925) 798-1620

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 0510298

EDT: YES

5 days

Requested TAT:

Report to: Cole Hute
Edd Clark & Associates, Inc.
320 Professional Center Ste. 215
Rohnert Park CA 94928

TEL: (707) 792-9500
FAX: (707) 792-9504
Project No: #0232; Richard Winterhalder 811 Irwin L
PO:

Accounts Payable
Edd Clark & Associates, Inc.
320 Professional Center Ste.215
Rohnert Park, CA 94928

Date Received: 10/17/2005
Date Printed: 10/17/2005

Date Received: _____ *Date Printed:* _____
Accounts Payable
Edd Clark & Associates, Inc.
320 Professional Center Ste.215
Rohnert Park, CA 94928

TEL: (707) 792-9500
FAX: (707) 792-9504
ProjectNo: #0232; Richard
PO:

Report to:

Sample ID ClientSampleID

Test | ~~appendix~~

1	9-OXYS_W
6	
11	
12	
7	GMBTEX_W
8	PREFD REPORT
4	
9	
10	
14	
15	
5	

Comments:

Prepared by: Maria Venegas

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.